

## ABSTRACT OF THE DISCLOSURE

An optical system includes a cavity which comprises a  
5 semiconductor light-emitting device, and an optical fiber having a first  
terminal optically coupled to the semiconductor light-emitting device, the  
cavity having a cavity length defined between a first facet of the  
semiconductor light-emitting device and a second terminal of the optical  
fiber, wherein a length of the optical fiber is such that a mode-locking  
10 oscillation frequency is not more than 1GHz.